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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,269	11/13/2003	Richard B. Nappi	1579-823	5655
23117	7590	07/13/2005	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			CHIEM, DINH D	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,269

Applicant(s)

NAPPI ET AL.

Examiner

Erin D. Chiem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 22-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/13/02</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election with traverse of Invention I, Species A, drawn to Fig. 2A and 2B in the reply filed on June 10, 2005 is acknowledged. The traversal is on the ground(s) that the device of Invention I and the method of making the device of Invention II are of the same scope of invention. This is not found persuasive because clearly there are two separate classifications for the device and the method of making the device, as presented in the Requirements for Election/Restrictions. Furthermore, the Examiner presented an alternate method of for making the product by using another and materially different process.

The requirement is still deemed proper and is therefore made FINAL.

Claims 22-30 are withdrawn from consideration.

Claim Objections

2. Claim 18 is objected to because of the following informalities: "bonding" is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The term "1.25 times" in claim 7 is a relative term which renders the claim indefinite.

The term "1.25 times" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably

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apprised of the scope of the invention. Light diffusion profile may be mathematically represented in various ways and the term "1.25 times" does not contain a unit wherein the value can be definitely compared, thus rendering the term "1.25 times" indefinite.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Sinofsky et al. (US 6,071,302).

Regarding claims 1-6 and 21, Figure 1 shows an optical fiber illuminator comprising an optical fiber 12 and light diffusing particles 24 affixed to a terminal end of the optical fiber. Sinofsky et al. further teach using Mastersil™ formula 151-Clear as the bonding material shaped for affixing the light-diffusing particles to the terminal end of the optical fiber (col. 5, line 50-60). From Fig. 1 and Fig. 3, Sinofsky et al. shows two embodiments of the particles, one having regular symmetrical spherical geometry (Fig. 1) and another embodiment having irregular geometry (asymmetrical) (Fig. 3).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinofsky et al.

Sinofsky et al. discloses an illuminator comprising an optical fiber having a light diffusing medium affixed to the terminal end of the fiber wherein the medium is a bonding material comprising solid light diffusing particles dispersed in the bonding material; except, Sinofsky does not disclose the amount of particles representative in percentage by volume.

On page 9, line 5-18, Applicant teach that the result effective variable of light diffusion profile is modifiable by adjusting the amount of light-diffusing particles 20 that are dispersed in the bonding material.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to experimentally vary the concentration of the particles by volume to achieve the desired light diffusion profile, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinofsky et al. in view of Bruce (US 5,534,000).

Sinofsky teaches an illuminator comprising an optical fiber having a light diffusing medium affixed to the terminal end of the fiber wherein the medium is a bonding material comprising solid light diffusing particles dispersed in the bonding material. However, Sinofsky does not explicitly teach the particle size in the medium having an average particle diameter

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between 5.0 microns to 10.0 microns. (NOTE: the range 5.0 – 10.0 microns reads on the ranges of claims 11-14)

Bruce teaches an illuminator comprising a fiber 14 and a diffusing tip comprising a bonding medium having diffusing particles dispersed in the bonding medium 18. Bruce teaches in detail the particle diameter being 3 microns in size (col. 5, line 46) and the particle diameter is substantially less than one-fourth the diameter of the optical fiber 12 having 1000 microns (col. 5, line 33).

Since Sinofsky and Bruce are both from the same field of endeavor, the purpose disclosed by Bruce would have been recognized in the pertinent art of Sinofsky.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to a bonding material having such small sized particles for the purpose effectively diffusing light in the wavelength range of 0.2-9 microns. **The motivation** for using bonding material having such small sized particles is such that the material can be placed into a syringe and deposit into the Teflon tube at the distal tip of the fiber (col. 5, line 47-60).

Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinofsky in view of Intintoli et al. (US 6,893,432 B2).

Sinofsky teaches an illuminator comprising an optical fiber having a light diffusing medium affixed to the terminal end of the fiber wherein the medium is a bonding material comprising solid light diffusing particles dispersed in the bonding material. However, Sinofsky does not explicitly teach the difference between the refractive indices is less than 5% nor does Sinofsky teach the Fresnel reflection at the interface between the bonding material and optical fiber is less than 1%.

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Intintoli teach the refractive index difference between the particle and the fiber core is less than 5% (col. 10, line 48-49) for the purpose of promoting further internal reflection.

Since Sinofsky and Intintoli are both from the same field of endeavor, the purpose disclosed by Intintoli would have been recognized in the pertinent art of Sinofsky.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to choose two optical transmitting material having similar refractive indices such that the difference between the indices is minimal. **The motivation** for choosing optical transmitting materials having similar refractive indices is for promoting further internal reflection (Intintoli col. 10, line 33-34).

Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinofsky. Sinofsky teaches an illuminator having a diffusing tip comprising bonding material with dispersive particles. The bonding material must have a greater refractive index than the housing wall or fiber. Furthermore Sinofsky teaches the critical angle for internal reflection for the interface (col. 4, line 44-56). However, Sinofsky does not explicitly teach the Fresnel reflection at the interface between the bonding material and the optical fiber is less than about 5% to less than about 1%. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the two optics transmitting material (i.e., for the optical fiber and the diffusing particles within the bonding material) to have low refractive indices difference to further cause light to reflect internally; since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem
Examiner
Art Unit 2883



Frank G. Font
Supervisory Primary Examiner
Technology Center 2800